

## **ABSTRACT OF THE DISCLOSURE**

A road block having an extensible bollard that is rapidly actuated into operative position commencing when an on-coming vehicle is at a distance to provide sufficient time for the almost  
5 instantaneous extension of the bollard so that the bollard is fully extended simultaneously with or before destructive contact of the vehicle. The bollard commences to extend whenever a vehicle is accelerating at a velocity that places the vehicle in contact with the bollards no later than when the bollards have extended 36  
10 inches. The bollard is manually or electronically actuated by a powerful spring force for slow extension, and by both the spring and a power lift for rapid extension. A guide means is included for proper alignment of the fast acting mechanism. Reset into standby configuration is achieved by the power lift.

## CATALOG OF PARTS

- 10 road block apparatus
- 11 bollard
- 12 removable casing
- 13 vehicle
- 14 road surface
- 16 outermost anchor housing
- 18 steel reinforced concrete
- 20 strata of the earth (below 14)
- 21 inside diameter (of bollard 11)
- 22 outside diameter (of bollard 11)
- 24 power spring (stored energy to lift bollard)
- 26 upper plate
- 28 plate
- 32 spring stop
- 34 power lift (air or hydraulic double acting cylinder assembly)
- 35 piston shaft (of power lift)
- 36 fastener (upper fastener for 35)
- 38 lower yoke (lower fastener or yoke for 34)
- 39 closure plate (welded to bottom of removable casing 12)
- 40 flange (on top of removable casing 12)
- 42 flange (on top of outer anchor housing)
- 44 cover (bolted to 11)

46 centralizer  
48 fluid flow line  
50 closure plate (at bottom of outer anchor housing)  
52 dry chamber  
54 aperture (forms skirt at bottom of outer anchor housing 16)  
56 housing skirt (at bottom of outermost anchor housing)  
58 annular area  
60 lower marginal end (of bollard 11 in the retracted position)  
62 flow line  
63 flow line  
64 fluid flow line  
65 & 165 3 position control valve  
68 power piston  
70 upper chamber  
72 lower chamber  
74 - 80 (spaced buried speed detectors)  
82 valve control box (for manually or automatically operating  
selected bollards)  
84 security enclosure (for radar antenna 86)  
86 radar (antenna connected to computer 88)  
88 computer 88  
94 radar signal